

## **CHAPTER 6**

### **STATE IMPLEMENTING STRATEGIES AND PLANS**

In *Hawaii's Coastal Nonpoint Pollution Control Program Management Plan* (CNPCP), the State described regulatory and non-regulatory mechanisms to address 57 management measures and included recommended actions. NOAA and EPA conditionally approved Hawaii's program and required the State to meet the conditions by 2003. The State must also submit 15-year strategies and 5-year implementation plans for the six nonpoint source categories identified in the Management Plan – agriculture, forestry, urban areas, marinas and recreational boating, hydromodifications, and wetlands and riparian areas. This chapter lays out the State's 15-year strategies and 5-year implementation plans and serves as a road map for Hawaii to reach its three long-term goals by 2013.

To fully implement the management measures for each nonpoint source category, the State will address the management measures in phases. In Phase I, 2000-2003, the State will focus on developing mechanisms to implement priority management measures identified by the State with input from the Counties, stakeholder groups, and Federal agencies. Although current State priorities focus on agricultural and urban area management measures, the State intends to gradually increase the focus on the other four categories as agricultural and urban measures are put in place. To maintain impetus, however, one or two management measures from the four other categories will be carried out in the 2000-2001 period. The availability of funds and technical assistance will influence the pace at which the State addresses management measures.

Because Hawaii's Coastal Nonpoint Pollution Control Program builds on existing mechanisms implemented by numerous agencies and resource users, the program relies on the cooperation and coordination among these entities. Polluted Runoff Forum participants and the focus groups for each nonpoint source category will continue to play important roles in the development of Hawaii's program. To maximize the participation and effectiveness of these focus groups statewide, the State will use a variety of communication mechanisms such as e-mail, tele/video conferencing, and meetings hosted by other partner agencies to facilitate the work of the focus groups. For FY00-01, CZM-Hawaii has received authorization to expend annual work funds of \$12,000 to support focus group travel and tele/video conferencing.

The 1996 CNPCP lists the management measures for each category of nonpoint source pollution, and the programs, best management practices, and regulatory authorities for each management measure. A list of all of the management measures can be found in Appendix G. Sections 6.1 to 6.6 build on the information in the management plan and include the following:

- (1) 15-year program strategies for the six nonpoint source pollution categories;
- (2) A list of the management measure titles for each category and the phases in which the State will address them;
- (3) NOAA and EPA's findings and conditions for the management measures; and
- (4) 5-year implementation plans.

Although NOAA and EPA accepted the idea that enforceable policies<sup>1</sup> “may be established through state, regional or local authorities”<sup>2</sup>, many of Hawaii’s management measures received only conditional approval from NOAA and EPA because the federal agencies did not feel that the existing enforceable policies and mechanisms, even if they applied at the county level, provided statewide backup authority. In October 1998, NOAA and EPA issued an additional Guidance that an opinion issued by the State’s Attorney General verifying that State enforcement authorities can be used to prevent nonpoint pollution and require management measure implementation would meet the requirement for statewide backup authority. Consequently, CZM-Hawaii will seek such an opinion in August 2000. The request will focus specifically on HRS chapters 205A, 342D, and 342E.

If the Attorney General’s opinion does not confirm such generalized application of these statutes, then implementing actions will be taken (see Tables 6-1 through 6-6) in each of the six nonpoint source categories to create some form of statewide enforceable policies.

The Hawaii CZM Program found that focus groups and subcommittees were extremely important in developing the CPNCP and plans to use a similar approach in carrying out the Implementation Plan. Following that model:

*Focus groups* will be established for each §6217 management measure category, e.g., agriculture or urban. All known organizations with an interest in the topic area (e.g., Hawaii Farm Bureau Federation) will be invited to become members. In addition, a solicitation will be sent to all persons who attended public information meetings inviting them to participate in one or more focus groups. Membership will remain open after the groups begin meeting. Focus groups will continue to meet throughout the 15-year implementation period or until the group agrees to disband. A full range of communication possibilities from personal to electronic will be developed for the focus groups.

*Subcommittees* will be formed within a focus group to work on a specific topic (e.g., a nutrient management subcommittee in the agriculture focus group).

### *Notes on Chapter 6, “State Implementing Strategies and Plans”*

Readers who reviewed the draft will note that the sections in Chapter 6 that cover the six management measure categories have been modified.

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1 Enforceable backup policies and mechanisms were defined in the *Coastal Nonpoint Pollution Control Program: Program Development Approval and Guidance* (NOAA and EPA, 1993, p. 34) by referring to §304(6a) of the federal CZMA where “enforceable policy” is defined as “State policies which are legally binding through constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions, by which a State exerts control over private and public land and water uses and natural resources in the coastal zone.”

2 *Ibid.*, , p. 35.

More narrative has been added to the 15-year program strategies. A new section listing implementing actions anticipated in each 5-year phase has been added; the actions listed in Phase II (2004-2008) and Phase III (2009-2013) may change as the State’s program moves closer to those years and progress on earlier actions can be assessed. Phase II and III actions will not be limited to those appearing in this document.

Within the tables, each subject is given its own letter designation that is used throughout the table for actions related to that subject. In addition, if more than one action is planned for a subject during a given year, each action will be numbered. Thus, if “Pollution Prevention Plan (PPP)” is designated “B” and three actions for that subject are planned in 2001, the actions would be designated B1, B2, and B3 under the year 2001. If action B1 continues to 2002, it still will be designated as B1. If “Pollution Prevention Plan” has a new section in 2001, it will be designated B4.

## 6.1 Agriculture

**15-year Program Strategy:** The State's strategy seeks to link agricultural programs and back-up authorities to the three long-term goals and the appropriate short-term goals. Through the phasing described below, the State seeks to fully implement by 2013 the agricultural management measures contained in Hawaii's CNPCP.

**Phase I:** By 2003, the State intends to develop a non-regulatory pollution prevention program (PPP) for agricultural operations to address the agricultural management measures on a statewide basis. During this period, the State will seek to expand watershed restoration action strategies, and total maximum daily loads will be used to determine the appropriate government programs, best management practices, and educational programs needed to meet water quality goals.

Every fifth year, the State will assess, using quantitative and qualitative evaluation methods, the degree to which application of agricultural best management practices led to water quality improvements. Water quality monitoring data will be one measure used in the evaluation. In addition, the State will measure the amount of acreage operating under an approved PPP, as well as the number of operators with an approved Plan. The State will evaluate the incentives and disincentives to participate in the PPP. The State will also update its monitoring and tracking plan for implementation of the 6217 management measures. Upon completion of the evaluations, the State will develop an implementation plan for the 5-year Phase II period.

**Phase II:** This Phase will continue to direct watershed initiatives, watershed restoration action strategies, identification of additional priority watershed, TMDL development, and implementation of other State programs toward meeting the long-term goals (see Chapter II) and to expand the implementation of agricultural management measures.

The evaluation, assessment, and updating process described under Phase I will be used to develop the Phase III 5-year implementation.

**Phase III:** Similar methods will be used to evaluate whether the previous five year implementing actions have improved water quality. During this Phase, the State will continue to direct watershed initiatives, watershed restoration action strategies, identification of additional priority watersheds, TMDL development, and implementation of other State programs toward meeting the long-term goals. It will also ensure that all the agricultural management measures in the CNPCP have been cumulatively implemented on a statewide basis.

The agricultural management measures are not the only ones that apply to agricultural operations. Some of the measures under hydromodifications and wetlands also apply. As the various activities in the 5-year Implementation Plan for agriculture (Table 6-1) are carried out, these linkages will be addressed.

One wetlands-agriculture connection occurs in the Food Security Act, which involves the Natural Resources Conservation Service (NRCS) in making wetland determinations/ delineations

when requested by cooperator and permitted by the landowner. “Swampbuster” provisions of the Act make cooperators ineligible for USDA benefits if, after a certain date, they manipulate or convert a wetland to increase agricultural production.<sup>3</sup>

#### 6.1.1 *Management Measures for Agriculture*<sup>4</sup>

- Erosion and Sediment Control Management Measure (Phase I)
- Management Measure for Wastewater and Runoff from Confined Animal Facility (Phase I)
- Nutrient Management Measure (Phase I)
- Pesticide Management Measure (Phase I)
- Grazing Management Measure (Phase I)
- Irrigation Water Management Measure (Phase I)

#### 6.1.2 *Finding and Conditions for Agricultural Management Measures*

**Finding:** NOAA and EPA determined that Hawaii’s program includes alternative management measures for confined animal facilities, pesticide and irrigation that are as effective as the 6217(g) management measures. NOAA and EPA cannot determine if the State’s proposed alternative management measures for erosion and sediment control, nutrient management, and grazing are as effective as the 6217(g) management measures until additional information is developed by the State. They also found that the State has identified a back-up enforceable authority, but has not yet demonstrated the ability of the authority to ensure implementation of the management measures throughout the 6217 management area<sup>5</sup>.

**Condition:** Within 3 years, the State must include management measures in conformity with the 6217(g) guidance for (1) erosion and sediment control, (2) nutrient management, and (3) grazing. Within one year, the State must develop a strategy to implement the agricultural management measures throughout the State and develop a monitoring plan and credible survey tools.

#### 6.1.3 *5-Year Implementation Plan*

The State will focus on the development of a voluntary, non-regulatory program and a back-up authority for agricultural operations and lands. The State seeks to develop a non-regulatory program, called the Pollution Prevention Plan (PPP) program, that builds upon the success of conservation plans currently prepared by operators, approved by Soil and Water Conservation Districts (SWCDs), with technical assistance from Natural Resource Conservation Service (NRCS), the University of Hawaii’s Cooperative Extension Service (CES), and the

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3 Personal communication, Terrell Kelley, NRCS, to Susan Miller, June 18, 2000 .

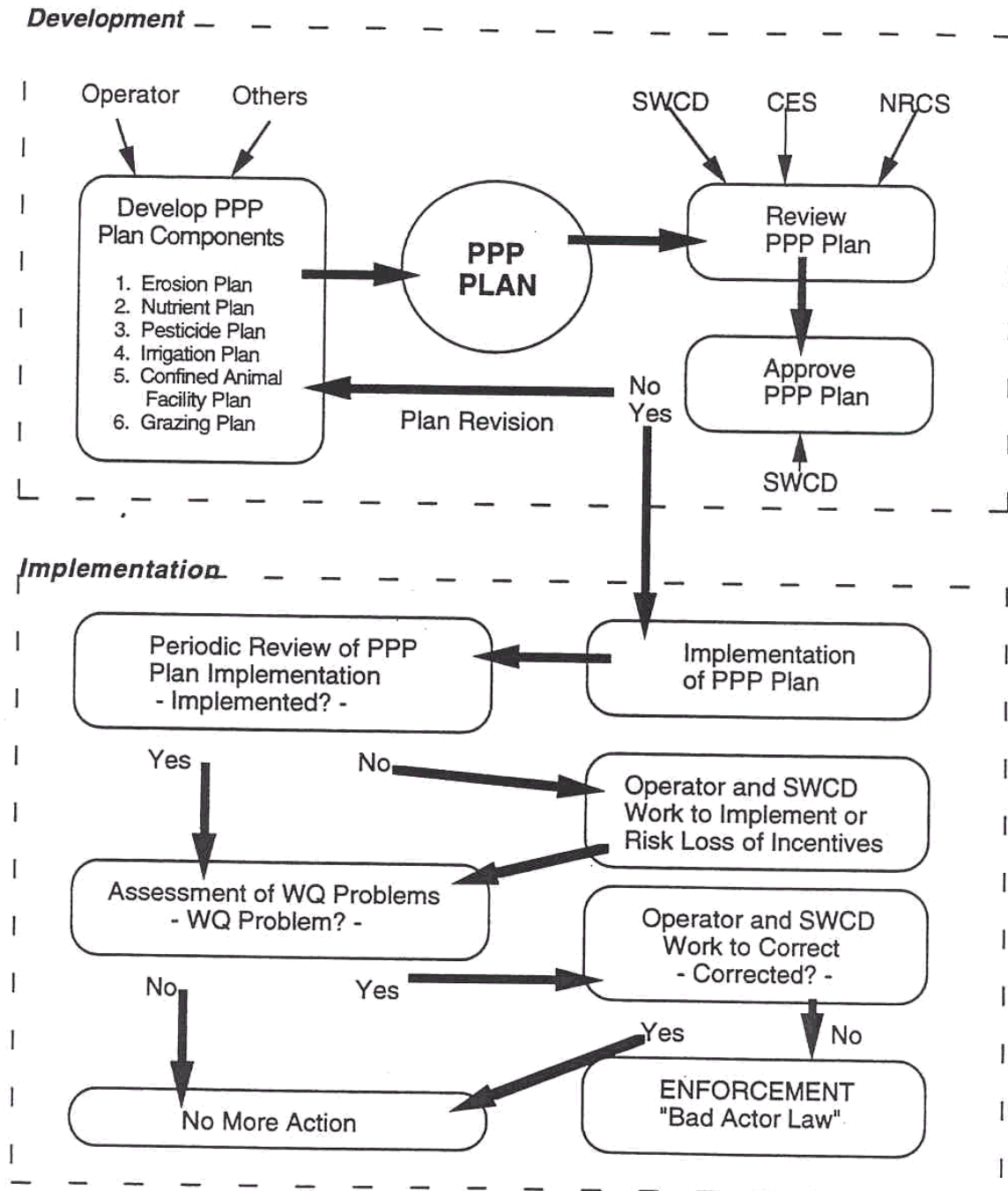
4 Pages III-10 through III-54 in *Hawaii’s Coastal Nonpoint Pollution Control Program Management Plan* describes the management measures below, their applicability, appropriate management practices, existing implementation mechanisms, and recommended implementing actions.

5 The “6217 management area” in Hawaii is coterminous with the coastal zone management area, which is the entire state and the coastal waters to the limits of the State’s jurisdiction.

Department of Agriculture (DOA). The proposed PPP program is described in *Hawaii's Coastal Nonpoint Pollution Control Program Management Plan* (CNPCP) (Figure III-1, page III-48) and is diagrammed on page 6-7. The State is committed to working with the agricultural community to develop a PPP program that is appropriate to Hawaii's environmental and economic conditions and that meets water quality goals.

The PPP program will target the major sources of polluted runoff from agricultural activities by working with land users to develop erosion, nutrient, pesticide, irrigation, confined animal facility, and grazing plans where appropriate. The State expects this program to improve water quality where runoff from agricultural areas impacts section 303(d)-listed waters and in areas where significant threats to water quality are present. The State also expects the program to address the transition from large-scale pineapple and sugar operations to smaller, diversified agricultural farms. The local SWCD will identify management practices that best control wastes and reduce pollutant source within its jurisdiction. The host SWCD will also play a very important role in educating new farmers and the local community about water quality and land management practices.

**Figure III-1: Agricultural PPP Plans - Operators Flowchart**



Prepared by PER (1995)

Figure 6-1: Pollution Prevention Plan Diagram

Source: CNPCP, (Figure III-1, page III-48)

The State seeks to develop the PPP program through a pilot project that will allow partner agencies and agricultural operators to adjust and revise the program to maximize its effectiveness and efficiency. The program will rely on the expertise within the local SWCD and agricultural community to guide implementation activities. Because preliminary estimates indicate substantial resources will be necessary to implement the proposed program statewide (estimated to be up to \$1.6 million), one of the products of the PPP pilot project will be to quantify these resource needs.

While the mission of the SWCDs can accommodate the expanded requirements of the voluntary PPP program, current levels of funding and technical expertise are not adequate enough to review, approve, and update existing conservation plans in a timely fashion. The State recognizes that funding levels for SWCDs and NRCS must increase significantly in order for the Districts to accept and implement these additional responsibilities. In addition, the State will consider adopting other incentives that will encourage land operators to participate in the PPP program. Furthermore, implementation of the PPP program will require a MOA with each SWCD and the agencies that will provide technical assistance.

An Agricultural Focus Group (AFG) - consisting of agencies, SWCDs, and other agricultural interests - will advise the Office of Planning (OP) and Department Health (DOH) on the development of the scope of the PPP pilot project and provide technical assistance. The AFG will function like the previous focus group that helped the State to develop *Hawaii's Coastal Nonpoint Pollution Control Management Plan*.

Most of the AFG's meetings will be held on Oahu, but OP and DOH will explore ways to enhance the participation of neighbor island representatives. These may include e-mail groups, faxes, conference calls, video conferencing, and neighbor island meetings. OP and DOH will also seek to prepare a Memorandum of Understanding with other agencies such as NRCS, DLNR, DOA, CES, Hawaii Association of Conservation Districts, and the Department of Land and Natural Resources (DLNR). The AFG may decide to divide into subgroups either geographically (by county), by agricultural use (grazing, large-scale mono-crop, small-scale diversified crops, etc.), or by water quality issue (sedimentation, nutrients, pesticides, etc.).

The State will provide information on the use of best management practices (BMPs) and methods to build partnerships to support the PPP project. Depending on the priorities set by the Agricultural Focus Group, the State will encourage the development and use of:

1. educational programs such as HAPPI (Hawaii's Pollution Prevention Information Project (the Hawaii version of Farm\*A\*Syst)).
2. an operators handbook describing the PPP program;
3. training materials;
4. BMP information; and
5. model pollution prevention plans for various crop categories.

As the statewide program develops at the conclusion of the pilot project, the components of pollution prevention plans will be linked into water quality goals. In the State's priority



watershed regions, for example, the PPP program will be incorporated into watershed restoration action strategies, total maximum daily loads (TMDLs), or other water quality goals identified by a SWCD, local watershed council, or the State. Water quality monitoring data and tracking the use of BMPs will be used to determine the effectiveness of the PPP program. Each local SWCD will have the flexibility to adjust the PPP program to address the major concerns in each district.

As identified in NOAA and EPA's Findings and Conditions, the State has not demonstrated the ability of back-up authorities to ensure implementation of the management measures throughout the 6217 management area. Hawaii's CNPCP Management Plan recommends the passage of a "Bad Actor Law" that would take effect against agricultural operators who have not cooperated with the PPP Program through the local SWCD and have not made a good faith effort to improve their operations. Should the State Attorney General confirm NOAA and EPA's Finding, the State will develop a Bad Actor Law modeled after the one proposed by the National Association of Conservation Districts. The State will rely on the Agricultural Focus Group and other agricultural interests to guide the development of the Bad Actor Law during Phase I. The State will also clearly define the role of the SWCDs in implementing the volunteer, non-regulatory PPP program.

Federal guidance for development of the CNPCP allowed states to create alternatives to the management measures provided by NOAA and EPA so long as a state also could show that the alternative was as effective at reducing polluted runoff as the federally proposed measure. As noted on page 6-4 under "Findings," Hawaii proposed three alternative agriculture management measures: erosion and sediment control, nutrient management, and grazing. NOAA and EPA indicated that the State would have to provide more information before they could judge the effectiveness of these alternatives.

CZM-Hawaii has received authorization to expend \$39,000 to develop the required information for the alternative erosion and sediment control management measure and \$4,000 to do the same for the alternative nutrient management measure. CZM Hawaii intends to have the two tasks completed by July 2001.

In summary, by 2003 the State will develop a non-regulatory PPP program for agricultural use, backed up by regulatory authorities. An Agricultural Focus Group consisting of agencies and agricultural interests will advise the State on how to develop these mechanisms designated to implement the management measures. These mechanisms will apply to all agricultural lands in the State, whether publicly or privately owned. More funds must be secured to fully develop and implement the State's PPP program.

Table 6-1  
Agricultural Management Measure Implementation Plans for 2000-2003

Year	Activity/Outcome	Facilitating Agency	Support
2000 A	<i>Agricultural Focus Group (AFG)</i> ➤1 Establish and convene AFG.	OP, DOH	Members of previous AFG, State, county, and federal agencies, interested public and private sector organizations
B	<i>Pollution Prevention Plan pilot project</i> ➤1 Select site for PPP pilot project. ➤2 Complete list of incentives and disincentives to participate in the PPP program. ➤3 Establish the scope of the PPP pilot project, recommend priority projects, and address other issues such as liability issues. ➤4 Secure commitments for the PPP pilot project from host SWCD, NRCS, CES, DOA, DOH, and OP.	OP, DOH	Host SWCD, NRCS, CES, DOA, DHHL, AFG
C	<i>State erosion control standards and acceptable levels of treatment</i> ➤1 Begin process to develop State erosion control standards. ➤2 Begin process to develop acceptable levels of treatment.	OP	DOH, AFG, NRCS, CES, DHHL
D	<i>Alternative management measure justification</i> ➤1 Prepare documentation to justify alternative management measures for erosion and sediment control, nutrient, and grazing management measures.	OP	CES, NRCS

Year	Activity/Outcome	Facilitating Agency	Support
2001 A	<i>Agricultural Focus Group (AFG), cont'd</i> ➤2 Implement priority projects identified by the Agricultural Focus Group. ➤3 Review management practices for vacant agricultural lands.	OP, DOH	AFG  DLNR, HACD, SWCDs, AFG
B	<i>Pollution Prevention Plan pilot project, cont'd</i> ➤5 Begin evaluation of Pilot PPP project. ➤6 Determine the technical, educational, and human resources necessary to fully implement the PPP program statewide. ➤7 Develop a strategy to implement the PPP program statewide.	DOH, OP	*Partner agencies and organizations
C	<i>State erosion control standards and acceptable levels of treatment, cont'd</i> ➤3 Complete State erosion control standards. ➤4 Determine acceptable levels of treatment.	OP	DOH, AFG, NRCS, CES
E	<i>Enforceable policies and mechanisms</i> ➤1 If Attorney General's opinion indicates that existing authorities are not sufficient, draft bad actor law or other appropriate back-up authority for PPP and have all interested parties review draft. ➤2 Demonstrate the ability of the proposed authority to ensure implementation of the management measure throughout the State.	OP, DOH	AFG, partner agencies and organizations
2002 A	<i>Agricultural Focus Group (AFG), cont'd</i> ➤4 Implement priority projects as identified by the Agricultural Focus Group.	OP, DOH	AFG
B	<i>Pollution Prevention Plan pilot project, cont'd</i> ➤8 Complete PPP pilot project evaluation. ➤9 Introduce legislation to implement the PPP program and establish non-regulatory PPP program statewide with appropriate back-up authorities. ➤10 Develop tracking mechanisms to monitor the effectiveness of Pollution Prevention Plans.	OP	AFG, DOH, HACD, CES, NRCS, DHHL, partner agencies and organizations

\* Partner Agencies includes those listed in the table above, the four Counties, other Federal agencies with related programs for agriculture, and other State agencies with related programs for agriculture including the Office of Hawaiian Affairs and the Department of Hawaiian Home Lands

Year	Activity/Outcome	Facilitating Agency	Support
2002 cont'd E	<i>Enforceable policies and mechanisms, cont'd</i> ➤3 Introduce proposed back-up authority in the State legislature.	DOH	
F	<i>State land lease requirements</i> ➤1 Revise State land leases requirements to be consistent with the PPP program, Bad Actor Law, and water quality goals. ➤2 Lengthen duration of leases to ensure that agricultural operators realize the long-term benefits for installing polluted runoff controls.	OP	DLNR, AFG, DHHL
2003 G	<i>Evaluation of outcomes in this 5-year implementation plan and preparation of next 5-year plan</i> ➤ Evaluate the State's progress towards meeting long-term goals. ➤2 Update the State's 15-year strategy and prepare a 5-year plan.	OP, DOH	AFG

## 6.2 Forestry

**15-year Program Strategy:** The State proposes to link forestry programs, best management practices, and education and training programs to water quality goals. As forestry operations increase on former sugar and pineapple lands, the State intends to ensure that polluted runoff control mechanisms are adequate to ensure that water quality goals are attained. The State will also link the management of conservation areas to water quality goals. The phasing described below is intended to result in implementing the forestry management measures contained in Hawaii's CNPCP statewide by 2013.

**Phase I:** The State will work to achieve widespread implementation of the forestry management measures through BMP implementation and tracking, incentives and technical assistance programs, inclusion of forestry operations into watershed restoration planning and activity, and incorporation of requirements for management plans and BMPs into leases of state land for forestry operations. If needed after AG's opinion (see page 6-2), establish back-up authorities to ensure statewide implementation.

An evaluation, assessment, and updating process similar to that described under the agriculture category Phase I section (Page 6-3) will be used to develop the Phase II 5-year implementation plan.

**Phase II:** As experience is gained and forestry operations in Hawaii grow, the State will either expand the PPP program to include forestry operations or develop another program to achieve the same ends through a voluntary program with enforceable backup. The same evaluation, assessment, and updating process described above will be used to develop the Phase III 5-year implementation plan.

**Phase III:** Similar methods will be used to evaluate whether the previous five-year implementation plans have improved water quality. Actions during this Phase will also ensure that all the forestry management measures in the CNPCP have been cumulatively implemented on a statewide basis by 2013.

### 6.2.1 *Management Measures for Forestry*

- Preharvest Planning Management Measure (Phase II)
- Streamside Management Zones (SMZs) (Phase II)
- Road Construction/Reconstruction Management Measure (Phase II)
- Road Management (Phase II)
- Timber Harvesting (Phase II)
- Site Preparation and Forest Regeneration Management Measure (Phase II)
- Fire Management (Phase II)
- Revegetation of Disturbed Areas (Phase II)
- Forest Chemical Management (Phase II)
- Wetlands Forest Management (Phase II)

### 6.2.2 Findings and Conditions

**Finding:** Hawaii’s program does not include management measures in conformity with the 6217(g) guidance for forestry. The State has identified a back-up enforceable authority but has not yet demonstrated the ability of the authority to ensure implementation of the management measures throughout the 6217 management area.

**Condition:** Within 5 years, the State must include in its CNPCP forestry management measures in conformity with the 6217(g) guidance. Within one year, the State must prepare a monitoring plan and credible survey tools that enable the State to assess over time the extent to which implementation of forestry management measures are reducing pollution loads and improving water quality. Within one year, the State must develop a strategy to implement the management measures for forestry throughout the 6217 management area. This strategy must include a description and schedule for the specific steps the State will take to ensure implementation of the management measure; describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful; and identify measurable results which, if achieved, will demonstrate the State's ability to achieve widespread implementation of the management measure using the described approach.

It is worth noting that since the above “Finding” was written, the State’s Division of Forestry and Wildlife published *Best Management Practices for Maintaining Water Quality in Hawaii* in June 1998. The State now requires BMPs in Forest Stewardship contracts and leases of State lands for forestry operations.<sup>6</sup>

### 6.2.3 5-Year Implementation Plan

In *Hawaii's Coastal Nonpoint Pollution Control Program Management Plan* (CNPCP), the State proposes to build on existing forestry programs and develop mechanisms to ensure that the appropriate BMPs are used. By 2003, the State intends to link forestry programs operations to enforceable back-up authorities to implement the forestry management measures and meet the conditions placed by NOAA and EPA.

To participate in certain forestry programs sponsored by Federal or State agencies, landowners submit forestry management plans. On agricultural lands, operators must prepare conservation plans for grading and grubbing activities, which is approved by the local Soil and Water Conservation District, to receive a waiver from the grading permit. The Pollution Prevention Plan (PPP) program intends to build on these existing programs and develop a non-regulatory program that will require approved forestry management plans in order to participate. The proposed PPP program is described in *Hawaii's Coastal Nonpoint Pollution Control Program Management Plan* (CNPCP) and in Section 6-1 of this Plan. The State is committed to working with the forestry community to develop a PPP program that is appropriate to Hawaii’s environmental and economic conditions and that meets water quality goals. Consequently, the

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6 Personal communication, Carl Masaki, Forestry Program Manager, DOFAW, to Susan Miller, June 7, 2000.

State will continue to rely on the expertise of the Forestry Focus Group to guide the implementation of the management measures.

The State intends to include forestry programs in watershed restoration action strategies. In priority watersheds that may have an impact on coastal water quality, all agencies and land users will be encouraged to participate in the development of these strategies to ensure that water quality goals, Total Maximum Daily Loads (TMDLs), or other stated objectives are met. Where possible, agencies and organizations will target their resources to achieve these goals. The State also seeks to establish methodologies to evaluate the effectiveness of best management practices and track their use. The State will use successful private/public partnerships agreements, such as the ones forged between the State, private land owners, and The Nature Conservancy of Hawaii in several conservation areas around the State, as models for developing and implementing watershed restoration action strategies that include forested lands.

Because commercial forestry operations have only recently expanded in Hawaii, the State will have more information towards the end of Phase I to determine the appropriate BMPs and back-up authorities needed to ensure implementation of the management measures statewide. To adequately address the State's priority categories of urban and agriculture areas, forestry management measures will primarily be addressed in Phase II.

Table 6-2  
Forestry Management Measure Implementation Plans for 2000-2003

Year	Activity/Outcome	Facilitating Agency	Support
2000 A	<i>Forestry Focus Group</i> ➤1 Establish and convene Forestry Focus Group (FFG).  ➤2 FFG evaluate the State's ability to achieve widespread implementation of the management measures.	OP, DOH  OP, DOH	Members of previous FFG, State, county, and federal agencies, interested public and private sector organizations FFG
B	<i>Best Management Practices</i> ➤1 Examine data on BMPs and their use in voluntary forestry programs and review forestry policies and guidelines.	OP	FFG, DOH, DLNR, HFCI, HFIA
C	<i>Unified Watershed Assessment</i> ➤1 Assess coordinated efforts in Unified Watershed Assessment priority areas. ➤2 Incorporate forestry programs into watershed restoration action strategies in priority watersheds, where appropriate.	DOH	OP, NRCS, DLNR, Host SWCD or Watershed Council
2001 A	<i>Forestry Focus Group, cont'd</i> ➤3 Determine the effectiveness of and the need for tree farm property tax classification, research programs, educational programs, and technical assistance for forestry operations. ➤4 Develop options to implement the forestry management measures by 2003 and link forestry operations to long- term goals.	OP	FFG, DOH, DLNR, HFIA, HFCI
C	<i>Unified Watershed Assessment, cont'd</i> ➤3 Implement watershed restoration action strategies.	DOH	Host SWCD or Watershed Council



Year	Activity/Outcome	Facilitating Agency	Support
2002 A	<i>Forestry Focus Group, cont'd</i> >5 Develop options to track the use of BMPs. >6 Determine costs of implementing recommendations. >7 Determine feasibility of including forestry operations on former agricultural lands into the PPP program.	OP	FFG, DLNR, DOH
B	<i>Best Management Practices, cont'd</i> >2 Incorporate forestry management plans and BMP requirements into State leases for forestry operations.	DLNR	OP, DOH
2003 B	<i>Best Management Practices, cont'd</i> >3 Establish process to track BMP implementation.	OP, DOH	FFG, DLNR
D	<i>Back-up authorities</i> >1 If Attorney General's opinion <sup>7</sup> indicates a need to do so, establish back-up authorities to ensure statewide implementation of the management measures.	OP, DOH	FFG, DLNR
E	<i>Evaluation and update of Plan</i> >1 Evaluate the State's progress towards meeting long-term goals. >2 Update the State's 15-year strategy and prepare the next 5-year plan.	OP, DOH, FFG	DLNR
F	<i>Identification of support sources</i> >1 Identify existing programs and funding sources to support implementation of the forestry management measures in the 2004-2008 period.	FFG	

HFIA – Hawaii Forestry Industry Association

HFCI – Hawaii Forestry and Communities Initiative

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<sup>7</sup> See Page 6-2.

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### 6.3 Urban Areas

**Introduction:** Although urban areas make up a small portion of Hawaii's land, the majority of residents occupy these regions and most urban population centers are along the coast. As an example, 89% of residents live in urban areas, which account for only 10% of all land areas in the State (DBEDT 1994). Such density can impair the surrounding environment as well as water quality in streams, coastal, and estuarine waters.

To minimize pollution associated with the impacts of urbanization, the State must implement a set of *urban* management measures. The management measures apply the best available and cost-effective technology to reduce polluted runoff associated with urban activities and development. The names of the sixteen (16) urban management measures and the scheduled phases for their implementation are listed in section 6.3.1. The text of each urban management measure appears in Appendix G of this document. For a complete description of the urban management measures, their applicability, appropriate management practices, existing implementation mechanisms, and recommended implementing actions, please refer to Part III of *Hawaii's Coastal Nonpoint Pollution Control Program Management Plan* (CNPCP).

It must be noted that the State plans to revise Hawaii Administrative Rules Title 11, Chapter 55 - *Water Pollution Control* to adopt the federal Storm Water Phase II Final Rule and implement the strategy in the NPDES permitting program as early as March 2003. This will require additional operators of municipal separate storm sewer systems (MS4's) in urbanized areas and operators of small construction sites to implement practices to control polluted storm water runoff. It is expected that the jurisdictions covered under the phase II program will no longer be subject to the management measures of the Coastal Nonpoint Pollution Control Program. For areas not covered under the NPDES permitting program, the State will implement the following strategy to meet all the management measures.

**15-year Program Strategy:** The State's strategy will link programs and projects to the three long-term goals and the appropriate short-term goals.<sup>8</sup> The State will link best management practices, educational programs, regulatory programs, and water quality monitoring to water quality goals or Total Maximum Daily Loads where appropriate. Effectiveness of best management practices and educational programs will be linked to water quality improvements. The State will also promote the inclusion of present and future nonpoint source concerns into development plans, economic development plans, and community development plans at the State and County levels. The State will also advocate for provisions to reduce sources of nonpoint pollution, maintain or increase the amount of permeable surfaces, and minimize the amount of impermeable surfaces.

**Phase I:** Since urban activities contribute significantly to polluted runoff in Hawaii, most implementation activities for this category will occur during Phase I. These activities include convening an Urban Focus Group and developing a memorandum of agreement with specific partners to identify roles and responsibilities aimed at controlling polluted runoff from urban

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<sup>8</sup> See page 2-7 *et seq.*

related activities. In addition, the Attorney General will determine whether the State has backup enforcement authorities<sup>9</sup> that can be applied to satisfy all urban management measures. Based on the review, the focus group will guide activities that will address and eliminate gaps in enforceable policies and mechanisms so that all urban management measures are met.

During Phase I, the State will also conduct a study that describes, compares and contrasts the requirements for siting, construction, operation and maintenance of roads, highways, and bridges under county and State jurisdiction. A request for proposals will be advertised and a contractor will be selected in 2001. The contractor will then carry out the study and analyze the effectiveness of both county and State processes for siting, construction, and operation and maintenance requirements. By 2002, the State will provide recommendations, as needed, for improving the processes to make them consistent with the management measures so that the State will have an approvable approach for all roads, highways, and bridges.

With respect to the Pollution Prevention management measure, the State will implement findings and recommendations developed from the DOH pollution prevention pilot project with hotels. DOH will work with the Maui Hotel Association, Hawaii Hotel Association, Hawaii Tourism Authority, Waikiki Improvement Association, and county visitor bureaus to further implement pollution prevention in the hotel industry. Tools will be developed to educate visitors about environmentally friendly ways that they can interact with Hawaii's unique land and ocean resources. These tasks will also be completed during Phase I.

The DOH Solid and Hazardous Waste Branch (SHWB) will also target public education and outreach strategies in the major urban and agricultural sectors such as repair shops, construction firms, general contractors' associations, military facilities, and farming associations. This will provide the groups with alternatives to current activities in order to minimize excessive pollution to streams and waterbodies. The DOH SHWB will provide this service through workshops and reprinting of *The Hawaii Guide to Alternatives & Disposal of Household Hazardous Wastes*.

A major activity that will help satisfy the New Development management measure is to use reliable computer runoff models to predict runoff rates so that measures can be applied to maintain postdevelopment peak runoff rates and average volumes at levels similar to predevelopment levels. A computer model to predict erosion and runoff rates is currently being developed for the Waimanalo watershed and is scheduled to be completed during Phase I. The model is expected to work in other watersheds throughout the State. The State's implementation of the federal Storm Water Phase II Final Rule will also help to satisfy the requirements for this management measure since both structural and nonstructural measures are employed to mitigate the adverse impacts of storm water associated with new developments.

During Phase I, the State also intends to develop an Urban BMP manual. This manual will describe the BMPs in urban areas for runoff from new development, watershed protection, site development, construction activities, existing development, onsite disposal systems and

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9 See Page 6-2.

roads, highways and bridges. The project will begin in 2002 and will include the following for each BMP:

- Total Suspended Solids (TSS) removal efficiency (average, reported range, and probable range depending on soil type;
- land requirement;
- construction cost (average, reported range, and probable cost);
- useful life; and
- annual operation and maintenance (O&M) needed and total annual cost to standardize polluted runoff acceptable practices and assist contractors in selecting appropriate practices that are applicable statewide.

During Phase I, the State will continue to carry out its Unified Watershed Assessment (UWA)<sup>10</sup> and Watershed Restoration Action Strategies programs. These are major watershed activities to reduce the generation of nonpoint source pollutants associated with all polluted runoff categories, including those identified in the urban sector. The State will evaluate completed watershed projects and continue to implement other watershed projects in the next tier of priority areas. This UWA process is a comprehensive watershed protection program that addresses those watersheds in greatest need of restoration and will continue to work on other priority watersheds scheduled to follow. It is a statewide process that will likely continue through all three Phases of the implementation plan as funding permits.

Finally, to order to have statewide consistency on erosion control ordinances, in Phase I the State will work with counties to revise their erosion control standards to a level consistent with the New Development Management Measure, as Maui County and the City & County of Honolulu have already done. This will be for areas not covered in federal Storm Water Phase II rules. The State's urban focus group made up of county, construction industry, land use experts, and Hawaii Water Environment Association will assist in developing county erosion control standards and developing educational materials, as well as training to facilitate implementation and compliance with the revised standards. The State will also develop mechanisms to track the implementation and assess the effectiveness of the urban BMPs to enable adequate evaluation of urban management measures.

**Phase II:** During this phase the State intends to change the language in Chapter 11-62, HAR to specify that "improper disposal of household hazardous or toxic materials, such as motor oil and solvents, is illegal and subject to a stiff fine." Furthermore, the State intends to include language that requires the installation or upgrade of denitrifying OSDS adjacent to nitrogen-limited surface waters where conditions indicate that nitrogen-limited surface waters may be adversely affected by excessive nitrogen loading. This will satisfy the OSDS management measures.

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<sup>10</sup> See Chapter 5.

**Phase III:** All implementation activities for the urban management measures will be carried out in the Phase I, with the exception of the OSDS management measures, which, for the most part, are in conformity with the 6217(g) Guidance. Because of this, Phase III activities will solely involve monitoring of the progress of the earlier implementation initiatives and the continued commitment to perform the activities to reduce urban runoff.

### *6.3.1 Urban Management Measures*

- New Development Management Measure (Phase I)
- Site Development Management Measure (Phase I)
- Construction Site Erosion and Sediment Control Management Measure (Phase I)
- Construction Site Chemical Control Management Measure (Phase I)
- Watershed Protection Management Measure (Phase I)
- Existing Development Management Measure (Phase I)
- New Onsite Disposal Systems Management Measure (Phase II)
- Operating Onsite Disposal Systems Management Measure (Phase II)
- Pollution Prevention Management Measure (Phase I)
- Golf Course Management Measure (Phase I)
- Management Measures for Planning, Siting and Developing Roads and Highways
- Management Measure for Bridges (Phase I)
- Management Measure for Construction of Roads and Highways (Phase I)
- Management Measure for Construction Site Chemical Control for Roads and Highways (Phase I)
- Management Measure for Operation and Maintenance of Roads and Highways (Phase I)
- Management Measure for Road, Highway, and Bridge Runoff Systems (Phase I)

### *6.3.2 Findings and Conditions for Urban Management Measures<sup>11</sup>*

Some management measures have identical findings and conditions. Therefore, measures were combined before showing associated findings and conditions.

- New Development Management Measure
- Site Development Management Measure
- Construction Site Erosion and Sediment Control Management Measure
- Construction Site Chemical Control Management Measure

**Finding:** Hawaii's program does not include management measures in conformity with the 6217(g) Guidance for new development. The State has identified a back-up enforceable authority for the new development management measure, but has not yet demonstrated the ability of the authority to ensure implementation throughout the 6217 management area.

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<sup>11</sup> See Appendix A, page A-5-6 *et seq.*

**Condition:** Within 1 year, the State will develop a strategy to implement the management measure through the 6217 management area. Also, within 1 year the State will develop and apply credible survey tools to demonstrate the ability of the State’s approach to achieve widespread implementation of this management area. Within 3 years, the State will include in its CNPCP the management measure in conformity with the 6217 (g) Guidance.

- Watershed Protection Management Measure
- Existing Development Management Measure

**Finding:** Hawaii’s program does not include management measures in conformity with the 6217(g) Guidance for watershed protection and existing development. Hawaii’s program includes enforceable policies and mechanisms to ensure implementation of the watershed protection management measure. The State has identified a back-up enforceable authority for the existing development management measure, but has not yet demonstrated the ability of the authority to ensure implementation throughout the 6217 management area.

**Condition:** Within 1 year, the State will develop a strategy to implement the management measure through the 6217 management area. Also, within 1 year the State will develop and apply credible survey tools to demonstrate the ability of the State’s approach to achieve widespread implementation of this management area. Within 3 years, the State will include in its CNPCP the management measure in conformity with the 6217 (g) Guidance.

- New Onsite Disposal Systems (OSDS) Management Measure
- Operating Onsite Disposal Systems (OSDS) Management Measure

**Finding:** Hawaii’s program includes management measures in conformity with the 6217(g) Guidance and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area, except for: 1) requirements for denitrifying OSDS, where applicable; and, 2) a program that ensures inspection of OSDS at a frequency adequate to ascertain system failure.

**Condition:** Within 3 years, the State will include in its CNPCP the management measure in conformity with the 6217 (g) Guidance. Also, within 3 years, the State will include in its CNPCP enforceable policies and mechanisms to ensure implementation of the new onsite disposal systems management measure throughout the 6217 management area by adding requirements for denitrifying OSDS, where applicable, and a process that ensures inspection of OSDS at a frequency adequate to ascertain system failure.

- Pollution Prevention Management Measure

**Finding:** Hawaii’s program contains management measures in conformity with the 6217(g) Guidance.

**Condition:** Not applicable.

- Golf Courses Management Measure

**Finding:** EPA and NOAA fully support the State in adoption and implementation of the Golf Course management measure. The measures selected by the State are an excellent foundation with which to manage and operate golf courses. The State may want to consider the development of siting and design guidelines or criteria for new golf courses to avoid, or at least, minimize potential environmental impacts of these facilities.

**Condition:** Not applicable.

- Management Measures For: Planning, Siting and Developing Roads and Highways; Bridges; Construction Projects; Construction Site Chemical Control; Operation and Maintenance; Road, Highway, and Bridge Runoff Systems

**Finding:** Hawaii's program includes management measures in conformity with the 6217(g) Guidance for State and Federal roads, highways, and bridges under the Department of Transportation (DOT) jurisdiction, except for the construction site chemical control, runoff systems, and operations and maintenance management measures. Hawaii's program does not include management measures in conformity with the 6217(g) Guidance to address local roads, highways, and bridges. The State has included enforceable policies and mechanisms to ensure implementation of the management measures for roads, highways, and bridges under State DOT jurisdiction, but has not included enforceable policies and mechanisms for local roads, highways, and bridges to ensure implementation throughout the 6217 management area.

**Condition:** Within 3 years, the State will include in its CNPCP the management measure in conformity with the 6217 (g) Guidance. In addition, within 3 years, the State will include in its CNPCP enforceable policies and mechanisms to ensure implementation of the all management measures not under DOT jurisdiction.

### *6.3.3 5-Year Implementation Plan For Urban Areas*

#### *6.3.3.1 New Development Management Measure*

Urbanization in the period 1950 through the mid-1970's brought widespread grading which exacerbated the prior stresses of sedimentation and toxics from these new developments. Urban runoff continues to be a major source of pollution with its associated issues of suspended solids and toxics. Because of Federal review of the CNPCP, findings and conditions were placed on Hawaii's conditionally approved program. As noted elsewhere,<sup>12</sup> the State will ask the Attorney General to determine whether HRS Chapter 342D, 342E, and 205A are adequate backup authorities for the management measures. It has been suggested that to assist developers and State agencies, research be conducted to calibrate computer runoff models so that they can be used reliably under the wide range of circumstances and conditions found in Hawaii. The State has been able to work with two counties to upgrade their existing erosion and control standards so that polluted runoff is better managed and they comply with the federal guidance of

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12 See page 6-2.



CZARA, Section 6217. The State will continue to work with the remaining two counties so that erosion and control standards are improved statewide. The likely cost for this process is about \$75,000 per county.

The State will convene its Urban Focus Group, supplemented by additional expertise as need, to assist in the development of materials and training to assist the construction /development industry in complying with revised standards. These training revisions would be county-specific and held within each county.

#### 6.3.3.2 Site Development Management Measure

The goal of this management measure is to reduce the generation of polluted runoff and to mitigate the impacts of urban runoff and associated pollutants from all site development. The use of site planning and evaluation can significantly reduce the cost of providing structural controls to retain pollution on site. It is anticipated that as counties upgrade their erosion control standards, proper site development will be addressed. It is recommended that research be conducted on alternatives to paved driveways and parking areas to reduce the imperviousness of urbanized areas.

#### 6.3.3.3 Construction Site Erosion and Sediment Control Management Measure

In recent years, the State has made great strides toward improving erosion and sediment control related to urban construction activities. For example, in August 1998 the County of Maui revised their grading ordinance to enable effective administration of grading activities, which control erosion and sedimentation from construction projects. The revision was supported by EPA funding administered through DOH. The erosion control project reflected a significant milestone for the State because it set a standard requirement of Best Management Practice (BMP) measures for all grading work, including minor work not requiring a permit. BMP measures included development and implementation of effective erosion control plans.

Because of the erosion control project, more counties within the State were encouraged to upgrade their grading ordinance to administer grading activities and control erosion and sedimentation from construction projects. In September 1998, an Erosion and Sediment Control Workshop sponsored by EPA, DOH, and the City and County of Honolulu was held to provide education and training for inspectors, contractors, engineers, and the general public on the implementation of effective erosion and sediment control plans for construction related activities. About one hundred and fifty (150) people participated in the workshop and learned to prepare an effective erosion and sediment control plan consistent with various federal, State, and county regulations.

In the next five years, the State expects progress to continue. A legal opinion may be needed regarding enforceable policies and mechanisms to ensure implementation of erosion and sediment control plans for construction sites where a NPDES permit administered by DOH (i.e., construction sites disturbing under 5 acres yet greater than 5,000 square feet of land) is not required.

If a review indicates the need, the State will prepare a strategy to address gaps in enforceable policies and mechanisms by carrying out the following activities:

1. developing a process whereby technical experts from NOAA and EPA will assist the State in developing an alternative management measure that satisfies NOAA and EPA yet is consistent with the State's historical political relationship with the counties.
2. convening a focus group comprised of DOH, CZM, DOT, and County officials to address the feasibility of establishing new erosion and sediment control programs.
3. establishing a memorandum of agreement among participating agencies in the focus group to identify and execute roles and responsibilities.

In 2002, the State plans to develop a manual of urban runoff BMPs applicable to Hawaii. The manual would include acceptable practices for erosion and sediment control associated with construction activities. It will help standardize acceptable practices and assist contractors in selecting practices that would be acceptable and applicable in all County and State projects. The estimated cost for the project is \$30,000.

The project will be evaluated by 2005 or when completed. The State expects to incorporate the standardized practices for erosion and sediment control identified in the urban BMP manual into guidelines established by the counties, particularly Kauai and Hawaii Counties. The State will encourage the Counties to revise their requirements to include the erosion and sediment control management measure or an alternative measure.

### 6.3.3.4 Construction Site Chemical Control Management Measure

Like the Construction Site Erosion and Sediment Control Management Measure, the Construction Site Chemical Control Management Measure aims to standardize acceptable practices during construction activity and prevent polluted runoff. The acceptable practices for construction site chemical control include general housekeeping of construction materials, toxic substances, and nutrients on construction sites. The State intends to use the same plan of action to address this management measure as it proposes for the erosion and sediment control measure.

### 6.3.3.5 Watershed Protection Management Measure

The Attorney General's review of enforceable policies and mechanisms<sup>13</sup> should be completed by 2001. Based on the Attorney General's review, the State will develop a strategy to address gaps in enforceable policies and mechanisms through the following actions:

1. supporting a process whereby technical experts from NOAA and EPA will assist the State in developing a variation or substitution of this management measure that satisfies NOAA and EPA yet is consistent with the State's historical political relationship with the counties;
2. convening its Urban Focus Group, supplemented by additional expertise as needed, to address the feasibility of establishing a statewide watershed protection program by

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<sup>13</sup> See Page 6-2.

guiding future development and land use activities in a manner that will prevent and mitigate the effects of polluted runoff; and

3. establishing a memorandum of agreement among participating agencies in the Focus Group to identify and carry out roles and responsibilities.

In 2003, the State expects to meet conditions of the Watershed Protection Management Measure or a variation of the management measure that satisfies NOAA and EPA yet is consistent with the State's historical political relationship (county home rule) with the counties. In this same year, the State intends to use information from Ala Wai (Oahu), Pelekane Bay (Hawaii), and West Maui Watershed Regions to evaluate what strategies work for continuing a successful watershed protection program. These strategies will be applied to other watersheds throughout the State, thereby mitigating the impacts of urban runoff and associated pollutants that result from new development or redevelopment, including the construction of new and relocated roads, highways, and bridges.

#### 6.3.3.6 Existing Development Management Measure

The State will implement the Hawaii Unified Watershed Assessment Program which is based on Federal guidance in the Clean Water Action Plan, select priority watersheds to conduct unified watershed assessments, and develop watershed restoration action strategies (see Chapter 5 for schedule). The first phase of the watershed programs covers 1999-2003. Phase II will begin in 2004 and Phase III will begin in 2009. Local UWA teams made up of community, agency, and industry sectors will work together to develop assessments based on monitoring information, total maximum daily load information, and community prioritization. Watershed Restoration Action Strategies (WRASs) will be developed through this process. The management measure for Existing Development will be implemented pending recommendations found in the WRASs. Recommended management practices from *Hawaii's Coastal Nonpoint Pollution Control Program Management Plan* such as retrofitting, regional structural, and non-structural opportunities will be implemented pending the WRAS for individual watersheds.

Whenever each county revises its countywide development plan, DOH and the Office of Planning will ask to be a part of the review process to look for opportunities to work with the counties to implement watershed management programs and to reduce pollutant concentrations and volumes from existing development.

#### 6.3.3.7 Management Measures for New and Operating Onsite Disposal Systems (OSDS)

The State will continue to encourage implementation of appropriate OSDS maintenance and operation practices. As an example, the State will consider administering a study to determine the feasibility of initiating a voluntary homeowner inspection, operation, and maintenance program for Onsite Disposal Systems. The study would provide valuable information with regard to acceptable management of OSDS. The likely cost for this project would be \$15,000.

Although OSDS management measures are important, they are not a DOH Wastewater Branch priority. Currently, the DOH enforces Chapter 11-62 HAR, which requires that no wastewater system (including OSDSs) be operated in such a way that it creates or contributes to

wastewater spill, overflow, or discharge onto the ground or surface waters; or contamination, pollution or endangerment of drinking water [§11-62-06(g)]. Chapter 11-62 HAR also requires compliance with the “Ten States Standards” with respect to maintenance and inspections of OSDS. Further, OSDS owners are required to follow the procedures in maintenance manuals that must be submitted to DOH for approval.

For the most part, the State is in conformity with the 62179(g) Guidance and any revisions to Chapter 11-62 will be addressed during Phase II implementation. The State intends to change the language in Chapter 11-62, HAR to specify that “improper disposal of household hazardous or toxic materials, such as motor oil and solvents, is illegal and subject to a stiff fine.” Furthermore, the State intends to include language that requires the installation or upgrade of denitrifying OSDS adjacent to nitrogen-limited surface waters where conditions indicate that nitrogen-limited surface waters may be adversely affected by excessive nitrogen loading.

By 2006, the State expects to implement the revision to Chapter 11-62, HAR, which include both the illegal disposal clause and the requirement for installation or upgrade of denitrifying OSDS where applicable. The State will also evaluate the results of the Onsite Disposal System project. Based on the results of the project, the State will encourage county governments to adopt local ordinances that will require participation in an operation and maintenance program for Onsite Disposal Systems.

### 6.3.3.8 Pollution Prevention Management Measure

This management measure is intended to prevent and reduce nonpoint source pollutant loadings generated from a variety of activities within urban areas not addressed by other management measures. Source reduction is considered preferable over waste recycling for pollution reduction. Everyday activities have the potential to contribute to nonpoint source pollutant loadings. Some of the major sources include households, garden and lawn care activities, turf grass management, diesel and gasoline vehicles, OSDS, illegal discharges to urban “runoff conveyances,” commercial activities, pets, and domesticated animals. By reducing pollutant generation, adverse water quality impacts from these sources can be decreased.

Everyday household activities generate numerous pollutants that may affect water quality. Common household nonpoint source pollutants include paints, solvents, lawn and garden care products, detergents and cleansers, and automotive products such as antifreeze and oil. The improper use and disposal of these products can be chronic sources of pollution. Failing or improperly sited, designed, or used OSDS may contribute both pathogens and nutrients to surface waters. Pollutants and litter are sometimes dumped into storm drains under the mistaken assumption that treatment will occur at the sewage treatment plant.

Hawaii will continue implementation of public education and outreach activities targeted to youth and adult age groups, business sectors, industry sectors, recent immigrant groups through brochures, posters, class room or conference visits, public service announcements, education fairs. In addition, the PRC Program will continue to actively participate in the State’s Pollution Prevention Roundtable.

In addition, there is a need for further development of public education and outreach strategies and actions for pollution prevention. DOH's Solid and Hazardous Waste Branch will target urban and agriculture sectors such as repair shops, construction firms, general contractors association, military facilities, farming associations, that could implement practices to reduce their waste streams. This would be implemented through workshops and reprinting of *The Hawaii Guide to Alternatives & Disposal of Household Hazardous Wastes*.

With six million visitors annually to our State, tourism is our largest industry. Our tourists can be unknowing contributors to Hawaii's pollution problem and environmental degradation. To resolve this issue, the State proposes a coordinated statewide campaign on pollution prevention targeting the tourist industry. A focus group committee, including at least the Hawaii Tourism Authority, each county's visitors bureau, hotel associations, Waikiki Improvement Association, State DOT, State DBEDT, and major airline carriers, will be asked to develop tools for educating each of our visitors about environmentally friendly ways that they can interact with Hawaii's unique land and ocean resources.

In 2001, the State will implement the findings and recommendations resulting from a pollution prevention pilot project with hotels. The DOH will have completed a pilot project for pollution prevention opportunities within hotels. DOH will work with the Maui Hotel Association, Hawaii Hotel Association, Hawaii Tourism Authority, Waikiki Improvement Association, and county visitor bureaus to further implement pollution prevention among the hotels. Implementation will likely cost \$50,000.

#### 6.3.3.9 Golf Course Management Measure

DOH has already started addressing the golf course management measure through sponsorship of a pollution prevention project in West Maui. A consultant was contracted to work with the hotel industry in developing landscaping techniques and other best management practices (BMP) to minimize polluted runoff from the hotel grounds, condominiums, and other resort facilities, including golf courses. Any practices gained from the West Maui project will be added to the state-of-the-art BMPs currently being implemented by golf course superintendents to address soil and erosion control during construction, use of nutrients, use of pesticides and irrigation. Because golf courses have the potential to be a significant source of polluted runoff, the State will consider establishing guidelines or criteria for the siting and design of new golf courses during Phase II.

#### 6.3.3.10 Management Measures for: Planning, Siting and Developing Roads and Highways; Bridges; Construction Projects; Construction Site Chemical Control; Operation and Maintenance; Road, Highway, and Bridge Runoff Systems

Hawaii's approach for the six management measures pertaining to roads, highways, and bridges is to view them collectively and address the issues from two perspectives. The first is a review of the State and Federal roads, highways and bridges under the State Department of Transportation's jurisdiction and the second is a look at the local roads, highways, and bridges not under DOT jurisdiction.

If required after the Attorney General's review<sup>14</sup>, a strategy will be prepared to address any gaps in enforceable policies and mechanisms for the management measures under DOT jurisdiction through the Urban Focus Group, supplemented by additional expertise as needed. The State will also consider developing a BMP manual applicable to Hawaii. The manual will describe BMPs in urban areas for runoff from new developments, watershed protection, site development, construction activities, existing development, onsite disposal systems and roads, highways, and bridges. Estimated cost for this manual is \$30,000.

Based on the Attorney General's review, a strategy will be prepared to address any gaps in enforceable policies and mechanisms for local roads, highways and bridges not under DOT jurisdiction; this will be proposed through a focus group similar to that mentioned above. The State also plans a study that describes and compares the requirements for siting, construction, operations and maintenance of roads under County jurisdiction and under State jurisdiction and provides recommendations for improving the County processes to render them consistent with the management measures. Estimated cost for this study is \$22,000.

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<sup>14</sup> See Page 6-2.

Table 6-3  
Urban Management Measure Implementation Plans for 2000-2003

Year	Activity/ Outcome	Facilitating Agency	Support
2000 A	<i>Urban Focus Group</i> ➤1 Convene Urban Focus Group (UFG).	DOH, OP	Members of previous UFG, State, county, and federal agencies, interested public and private sector organizations
B	<i>Public education and outreach activities</i> ➤1 Continue implementing public education and outreach activities targeting youth and adult age groups, business sectors and recent immigrant groups. ➤2 Continue having the PRC Program participate in the State's Pollution Prevention Roundtable to develop new tools and approaches to educate public and sectors on polluted runoff control.	DOH	EEN, DOH- SHWB
C	<i>Study of management measures for roads, highways, and bridges</i> ➤1 Initiate and conduct initial phase of a study that reviews §6217 requirements for siting, construction, operation and maintenance of roads, highways, bridges under county jurisdiction and State jurisdiction where such facilities are not covered under federal Storm Water Phase II rules.	OP, DOH, consultant	DOT, Counties, UFG

Year	Activity/ Outcome	Facilitating Agency	Support
2001 B	<i>Public education and outreach activities, cont'd</i> ➤3 Continue implementing public education and outreach activities.	DOH	EEN, DOH-SHWB
C	<i>Study of management measures for roads, highways, and bridges, cont'd</i> ➤2 Describe State processes for the siting and design, construction, and operation and maintenance of roads, highways, and bridges. ➤3 Describe processes used by each County for the siting and design, construction, and operation and maintenance of roads, highways, and bridges. ➤4 Compare and contrast the effectiveness of these processes, and provide recommendations to improve the processes to render them consistent with the Roads, Highways, and Bridges Management Measures in order to have an approvable approach statewide.	DOH, OP, consultant	DOT, Counties, UFG, contractors' associations
D	<i>Enforceable policies and mechanisms</i> ➤1 If the AG's review <sup>15</sup> indicates that there are gaps in enforceable policies and mechanisms, develop a strategy to address those gaps with aid of UFG. ➤2 Follow up strategy development by meetings of the UFG, with additional expertise as needed, to address enforceability in the context of urban issues.	DOH, OP	UFG, others with interest and expertise
E	<i>Pollution prevention in the hotel industry</i> ➤1 In partnership with industry representatives, implement findings and recommendations from the DOH hotel pollution prevention pilot project statewide.	DOH	Hotel Industry

<sup>15</sup> See Page 6-2.



Year	Activity/ Outcome	Facilitating Agency	Support
2002 B	<i>Public education and outreach activities, cont'd</i> ➤4 Continue implementing public education and outreach activities targeted to urban issues.	DOH	EEN
F	<i>Increase reliability of existing computer runoff models</i> ➤1 Conduct research to calibrate existing computer runoff models for the New Development Management Measure to increase their reliability under a wide range of conditions and circumstances in Hawaii.	DOH, consultant	USGS, other model makers and users
G	<i>Urban Best Management Practices (BMP) Manual</i> ➤1 Develop an Hawaii-specific BMP manual that describes BMPs in urban areas to reduce runoff from various activities (see p. 19) in order to standardize acceptable polluted runoff control practices and assist contractors in selecting appropriate practices that are applicable statewide.	DOH & OP, consultant	UFG, Counties, contractors' associations
H	<i>Reduction and mitigation of pollution from new development</i> ➤1 For urban areas not covered by federal Storm Water Phase II rules, UWA, and WRAS activities, use evaluation information from watershed projects and county general plans to maintain a watershed protection program aimed at reducing polluted runoff and mitigating the impacts of urban runoff and pollutants from new development or redevelopment, including construction of new and relocated roads, highways and bridges.	DOH & OP	DOT, DLNR, Counties

Year	Activity/ Outcome	Facilitating Agency	Support
2003 B	<i>Public education and outreach activities, cont'd</i> ➤5 Continue implementing public education and outreach activities targeted to urban issues.	DOH	EEN
I	<i>Develop additional public education and outreach strategies and actions for pollution prevention</i> ➤1 Work with DOH's Solid and Hazardous Waste Branch to target urban and agriculture sectors through workshops and reprinting "The Hawaii Guide to Alternatives & Disposal to Household Hazardous Waste" to focus on repair shops, construction companies, military facilities, and farming associations to reduce their waste streams. ➤2 Coordinate a statewide campaign on pollution prevention targeting the tourist industry by establishing a special focus group to develop tools for educating all our visitors about environmentally friendly ways they can interact with all the unique land and ocean resources the State has to offer. ➤3 Support collaborative processes for technical assistance and dissemination of information to reduce polluted runoff from golf courses: ➤ a DOH-PRC will provide assistance and information to the local chapters of the Golf Course Superintendents Association; ➤ b Work with resort and golf course planners to bring developers and superintendents together to collaborate early on the design and development of golf courses to address polluted runoff control.	DOH  DOH  DOH-PRC	DOH-SHWB  HTA, County visitor bureaus, hotel associations, WIA, DOT, DBEDT, and major airlines  Golf superintendents
➤ J	<i>Upgrading of erosion control standards consistent with the New Development Management Measure</i> ➤1 To create statewide consistency on erosion control ordinances, for areas not covered in federal Storm Water Phase II rules, convene a focus group to assist in developing county erosion control standards and develop educational materials and training to facilitate implementation and compliance with revised standards. ➤2 Develop mechanisms to track the implementation and assess the effectiveness of the urban BMPs to enable adequate evaluation of urban management measures.	DOH, OP  DOH, OP	UFG, County Public Works departments, construction industry, land use experts, and Hawaii Water Environment Association, other 6217 focus group

<b>Year</b>	<b>Activity/ Outcome</b>	<b>Facilitating Agency</b>	<b>Support</b>
2003, cont'd K	<i>Reduction and mitigation of pollution from existing development</i> ➤1 As the Counties revise their General Plans, DOH and OP will ask to participate in the review process, seeking opportunities to assist the Counties to implement their watershed protection programs.	DOH, OP	Counties
L	<i>Statewide watershed protection program</i> ➤1 Complete and implement the watershed protection program plan based on effective urban BMP measures and design projects identified in the restoration activities of completed, priority watershed projects in order to have a statewide implementation approach and target critical areas.	DOH	UFG, UWA watershed project working groups
M	<i>Evaluation of outcomes in this 5-year implementation plan and preparation of next 5-year plan</i> ➤1 Using information gained from evaluation and experience of past three years, work with agencies and stakeholder groups to develop implementation strategies for urban activities for next five years. ➤2 Prepare urban section of 5-year Implementation Plan for Phase II (2004-2008), take out for public review, finalize, and submit to EPA & NOAA.	OP, DOH	UFG and other government, public & private sector entities and individuals with a stake in urban activities.

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## 6.4 Marinas and Recreational Boating

**15-year Program Strategy:** The implementation of the marina and recreational boating management measures contained in *Hawaii's Coastal Nonpoint Pollution Control Plan* (CNPCP) will result in improved design and operation of marinas and better educated boaters. These in turn will lead in the long term to improved quality in the marinas and adjacent shore waters.

**Phase I:** By 2003, the State intends to formally incorporate guidelines and criteria based on CNPCP management measures into decision making for permits to develop and operate marinas and small boat harbors in order to meet the conditions imposed on Hawaii's CNPCP by EPA and NOAA. In addition, the State will carry out a comprehensive public education campaign to improve the practices of marina operators and recreational boaters as a means of reducing polluted runoff into marinas.

**Phase II:** By 2008, the State will carry out a process to revise and implement existing draft guidelines for planning and evaluation of proposals for new or expanded public and private marinas. In order to bring existing facilities into compliance with the CNPCP, the State will incorporate CNPCP management measures as provisions of new leases (or revision of existing leases) issued to private entities to operate repair, fueling, and sewage facilities in State harbors.<sup>16</sup> In addition, the State will work to develop partnerships to continue carrying out elements of the education campaign developed in Phase I.

**Phase III:** By 2013, the State will carry out a statewide evaluation of the implementation of all CNPCP Marinas and Recreational Boating management measures. Where implementation is not sufficient to accomplish pollutant reduction, the State will undertake appropriate activities to ensure compliance with the management measures.

During the last year of each Phase, the State will evaluate the implementation of activities proposed for that Phase, prepare the next five-year *Implementation Plan* for public review, and submit the final plan for the next Phase to EPA and NOAA.

### 6.4.1 Management Measures for Marinas and Recreational Boating<sup>17</sup>

- Marina Siting and Design
  - ♦ Marina Flushing Management Measure (Phase II)
  - ♦ Water Quality Assessment Management Measure (Phase II)
  - ♦ Habitat Assessment Management Measure (Phase II)
  - ♦ Shoreline Stabilization Management Measure (Phase I)
  - ♦ Storm Water Runoff Management Measure (Phase I)

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<sup>16</sup> Letter from David E. Parson, DOBOR, to David Blane, December 15, 1999.

<sup>17</sup> Pages III-163 through III-204 in Hawaii's Coastal Nonpoint Pollution Control Program Management Plan describes the management measures below, their applicability, appropriate management practices, existing implementation mechanisms, and recommended implementing actions.

- ♦ Fueling Station Design Management Measure (Phase I)
- ♦ Sewage Facility Management Measure (Phase I)
- Marina and Boat Operation and Maintenance
  - ♦ Solid Waste Management Measure (Phase II)
  - ♦ Fish Waste Management Measure (Phase II)
  - ♦ Liquid Material Management Measure (Phase II)
  - ♦ Petroleum Control Management Measure (Phase II)
  - ♦ Boat Cleaning Management Measure (Phase II)
  - ♦ Public Education Management Measure (Phase II)
  - ♦ Management of Sewage Facilities Management Measure (Phase I)
  - ♦ Boat Operation Management Measure (Phase II)

*6.4.1.1 Note on the applicability of marina and recreational boating management measures to State boat harbors*

“The following operations/ facilities are covered by these management measures:

- Any facility that contains 10 or more slips, piers where 10 or more boats may tie up, or any facility where a boat for hire is docked;
- Boat maintenance or repair yards that are adjacent to the water;
- Any federal, State, or local facility that involves recreational boat maintenance or repair that is on or adjacent to the water;
- Public or commercial boat ramps;
- Any residential or planned community marina with 10 or more slips; and
- Any mooring field where 10 or more boats are moored.”<sup>18</sup>

These criteria are met by State boat harbors.

*6.4.2 Findings and Conditions for Marina and Recreational Boating Management Measures*<sup>19</sup>

- Marina Siting and Design

**Finding:** Hawaii’s program includes management measures in conformity with the 6217(g) guidance for marina flushing, water quality assessment, and habitat assessment, but does not include management measures for shoreline stabilization, storm water runoff, fueling station design, and sewage facility management. The program includes enforceable policies and mechanisms to ensure implementation of the management measures.

- Boating Operation and Maintenance

**Finding:** Hawaii's program includes management measures in conformity with the 6217(g) guidance, except for maintenance of sewage facilities. The program includes enforceable policies and mechanisms to ensure implementation of the management measures throughout the 6217 management area.

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<sup>18</sup> Page III-163, CNPCP.

<sup>19</sup> See Appendix A-5 for full text of “Findings...”

**Conditions:** Within 5 years, the State will include in its CNPCP management measures in conformity with the 6217(g) guidance for the following categories of activities:

Siting and Design:

1. shoreline stabilization;
2. storm water runoff;
3. fuel station design; and,
4. sewage facilities;

Operation and Maintenance:

5. maintenance of sewage facilities.

#### 6.4.3 5-Year Implementation Plan

The following plan proposes a series of activities to begin to work toward accomplishment of the 15-year strategy. In the process, the State intends to address the conditions regarding the marinas and recreational boating management measures imposed by the *Findings for Hawaii's Coastal Nonpoint Pollution Control Program*. The plan includes projects to:

- (1) Formally adopt guidelines and criteria based on the CNPCP management measures for shoreline stabilization, storm water runoff, fueling station design, and sewage facilities management to be used in making decisions on Conservation District Use Applications (CDUA) and under the Department of Health's (DOH) water quality authority; and
- (2) Develop a comprehensive public education program for marina operators and the boating community that helps people take pride in a clean, well-operated marina and boating operations with minimal pollution.

Table 6-4 presents these action items and desired outcomes for marinas and recreational boating for the period 2000-2003 and, as far as the information is currently available, shows lead and support actors.

#### 6.4.4 Phase II activities

The management measures listed in section 6.4.1 as Phase II activities will be components of the next five-year Implementation Plan.

Table 6-4  
Marinas and Recreational Boating Management Measure Implementation Plans for 2000-2003

Year	Activity/ Outcome	Facilitating Agency	Support
2000 A	<i>Comprehensive public education program</i> ➤1 Include in FY00-01 CZM workplan the development of a comprehensive public education program for marina operators and the boating community that helps people take pride in clean, well-operated marinas and boating operations with minimal pollution. ➤2 Implement process for contract to develop and carry out public education program.	OP	
2000 B	<i>Marina Focus Group</i> ➤1 Establish and convene Marina focus group (MFG).	OP, DOH	Members of previous MFG, State, county, and federal agencies, interested public and private sector organizations
2000 C	<i>Provide enforceable policies and mechanisms for certain marina siting and design management measures</i> ➤1 Convene MFG to consider proposal to have DLNR and DOH formally adopt guidelines and criteria based on the CNPCP management measures for shoreline stabilization, storm water runoff, fueling station design, and sewage facilities management to be used in making decisions on Conservation District Use Applications (CDUA) and under the Department of Health's (DOH) water quality authority.	OP, DOH	MFG, DLNR-DOBOR, DLNR-DLM, other interested parties
2001 A	<i>Comprehensive public education program, cont'd</i> ➤3 Undertake development of the marina education program funded by Activity 2000-A, including involvement of interested stakeholders.	OP, Consultants	MFG, DOH, DLNR, DBEDT-Ocean Resources Branch, University of Hawaii Marine Options Program and Sea Grant Extension Service, Waikiki Aquarium, other stakeholders, NGOs, and the public



<b>Year</b>	<b>Activity/ Outcome</b>	<b>Facilitating Agency</b>	<b>Support</b>
2001 cont'd C	<i>Provide enforceable policies and mechanisms for certain marina siting and design management measures, cont'd</i> ➤2 Meet with stakeholders and interested members of the public concerning the proposal (as revised/updated by focus group in Activity 2000-C) to formally incorporate marina management measures as criteria for DLNR and DOH permitting of marinas.	OP, DOH	MFG, DLNR-DOBOR, DLNR-DLM, stakeholders and interested members of the public
2002 A	<i>Comprehensive public education program, cont'd</i> ➤4 Begin implementation of marina education program development.	OP, consultants	MFG, DOH, DLNR, DBEDT-Ocean Resources Branch, University of Hawaii Marine Options Program and Sea Grant Extension Service, Waikiki Aquarium, other stakeholders, NGOs, and the public
C	<i>Provide enforceable policies and mechanisms for certain marina siting and design management measures, cont'd</i> ➤3 Process incorporation of marina management measures as a part of DOH water quality permitting	DOH, OP	
2003 A	<i>Comprehensive public education program, cont'd</i> ➤5 Continue implementation of marina education program development and evaluate its impact on water quality in and around marinas.	OP, consultants	MFG, DOH, DLNR, DBEDT-Ocean Resources Branch, University of Hawaii Marine Options Program and Sea Grant Extension Service, Waikiki Aquarium, TORCH, Pacific Whale Foundation, other stakeholders, and public

Year	Activity/ Outcome	Facilitating Agency	Support
2003 cont'd D	<i>Evaluation of outcomes in this 5-year implementation plan and preparation of next 5-year plan</i> ➤1 Using information gained from evaluation and experience of past three years, work with agencies and stakeholder groups to develop implementation strategies for marinas and recreational boating for next five years ➤2 Prepare marinas and recreational boating section of 5-year Implementation Plan for Phase II (2004-2008), take out for public review, finalize and submit to EPA & NOAA.	OP	MFG and other government, public & private sector entities and individuals with a stake in marinas and recreational boating

## 6.5 Hydromodifications

**15-year Program Strategy:** Implement *Hawaii's Coastal Nonpoint Pollution Control Plan* (CNPCP) management measures for hydromodification and undertake other actions to protect streambanks and shorelines and the habitats associated with them, which will lead to the improvement in the quality of streams and nearshore waters, contributing to achievement of the State's long-term water quality goals.

**Phase I:** By 2003, as a part of a larger process which develops a statewide watershed protection program or policies (which may include stream restoration) that preserve areas critical to water quality within all watersheds of Hawaii, the State plans to:

1. identify and implement opportunities in operation and maintenance programs for existing modified channels which will improve water quality and habitat;
2. investigate appropriate actions, including enforceable policies and mechanisms, to reduce erosion and sediment and chemical and pollutant discharge in the building and management of dams; and
3. develop a process to identify and solve existing nonpoint source pollution caused by streambank or shoreline erosion that are not reviewed under existing permit authorities, including protection of stream banks and shorelines against erosion due to use of the adjacent surface waters.

**Phase II:** By 2008, the State will develop and incorporate into the statewide watershed protection program means by which communities can be directly involved in the management of watersheds. These actions will include protection and restoration of instream and riparian habitat. The State will work with proper bodies to incorporate provisions in their governing documents to implement the recommendations developed in Phase I for enforceable policies and mechanisms regarding erosion and sediment control, and chemical and pollution control, for dams. In addition, the State will bring a fourth county into the project begun in Phase I dealing with streambank and shoreline erosion and, if needed, develop mechanism to continue project under other auspices. The State will continue to monitor the development and implementation of county drainage standards with a focus on reduction of channelization.

**Phase III:** By 2013, dam, channel, and streambank bank and shoreline protections called for by the §6217 management measures will be in place. Policies and programs for community involvement in watershed management will give additional protections to water quality as it is impacted by hydromodifications.

During the last year of each Phase, the State will evaluate the implementation of activities proposed for that Phase, prepare the next five-year Implementation Plan for public review, and submit the final plan for the next Phase to EPA and NOAA.

6.5.1 *Management Measures for Hydromodifications*<sup>20</sup>

- Channelization and Channel Modification Management Measures
  - ♦ Management Measure for Physical and Chemical Characteristics of Surface Waters (Phase I)
  - ♦ Instream and Riparian Habitat Restoration Management Measure (Phase II)
- Dams Management Measures
  - ♦ Management Measure For Erosion And Sediment Control (Phase I)
  - ♦ Management Measure for Chemical and Pollutant Control (Phase I)
  - ♦ Management Measure for Protection of Surface Water Quality and Instream and Riparian Habitat (Phase II)
- Streambank And Shoreline Erosion Management Measure
  - ♦ Management Measure for Eroding Streambanks and Shorelines (Phase I)

6.5.2 *Findings and Conditions for Hydromodifications Management Measure*

- Channelization/Channel Modification

**Findings:** Hawaii’s program includes management measures in conformity with the 6217(g) guidance, and enforceable policies and mechanisms to ensure implementation of the management measures, except for management measures in conformity with the 6217(g) guidance for existing modified channels.

- Dams

**Findings:** Hawaii’s program includes management measures in conformity with the 6217(g) guidance, and enforceable policies and mechanisms to ensure implementation of the management measures, except for: (1) management measures in conformity with the 6217(g) guidance for erosion and sediment, and chemical and pollutant control; and, 2) enforceable policies and mechanisms to ensure implementation throughout the 6217 management area.

- Streambank and Shoreline Erosion

**Findings:** Hawaii’s program includes management measures in conformity with the 6217(g) guidance, and enforceable policies and mechanisms to ensure implementation of the management measures, except for protecting streambanks and shorelines against erosion due to uses of the adjacent surface waters. The State has proposed an alternative management measure for eroding streambanks and shorelines management that is as effective as the 6217(g) guidance, but does not include a process to identify and solve existing nonpoint source problems caused by streambank or shoreline erosion that are not reviewed under existing permit authorities.<sup>21</sup>

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20 Pages III-205 through III-230 in *Hawaii’s Coastal Nonpoint Pollution Control Program Management Plan* describe the management measures below, including their applicability, appropriate management practices, existing implementation mechanisms, and recommended actions.

21 Appendix A-5, pages A-5-13 – A-5-15.

**Conditions:** Within 5 years, the State will include in its CNPCP:

- (1) management measures in conformity with the 6217(g) guidance for the following hydromodification management measures:
  - a. existing modified channels;
  - b. erosion and sediment control of dams;
  - c. chemical and pollutant control for dams;
  - d. protection of stream banks and shorelines against erosion due to use of the adjacent surface waters. The State will also develop a process to identify and solve existing nonpoint source pollution caused by streambank or shoreline erosion that are not reviewed under existing permit authorities; and
- (2) enforceable policies and mechanisms to ensure implementation of the management measures for erosion and sediment control, and chemical and pollutant control, for dams throughout the 6217 management area.

#### 6.5.3 5-Year Implementation Plan For Hydromodifications

The following plan proposes a series of actions to work toward accomplishment of the 15-year goal by addressing the conditions regarding certain hydromodification management measures imposed by the *Findings for Hawaii's Coastal Nonpoint Pollution Control Program*. Addressing these conditions will implement some of the recommendations in *Hawaii's Coastal Nonpoint Pollution Control Program Management Plan*. The plan includes projects to:

1. determine how best to implement the management measure which sets as a goal a State-level program to identify opportunities for improvement of water quality and habitat in existing modified channels as a part of an operation and maintenance program for such channels; and
2. investigate appropriate enforceable policies and mechanisms for the dams management measures for erosion and sediment, and chemical and pollutant control.

Table 6-5 presents these hydromodification action items and desired outcomes for the period 2000-2003 and, as far as the information is currently available, shows lead and support actors.

Table 6-5  
Hydromodification Management Measure Implementation Plans for 2000-2003

Year	Activity/ Outcome	Facilitating Agency	Support
2000A	<i>Stream Systems Focus Group</i> ➤ 1 Establish and convene the Streams System focus group (SFG). (The SFG will cover hydromodifications, wetlands, and riparian areas, so it will be necessary to ensure that the membership includes representation from a full range of entities and individuals involved in use, regulation, and enhancement of channels, dams, wetlands, estuaries, and streams.)	OP, DOH	Members of previous SFG, State, county, and federal agencies, interested public and private sector organizations
B	<i>Watershed Protection Program</i> ➤ 1 Initiate a three-year project in FY00-01 CZM workplan to develop a statewide watershed protection program or policies that preserve areas critical to water quality within all watersheds of Hawaii. ➤ 2 Within the framework of the project described above, use an RFP process to initiate a contract for the project, which will include as elements the hydromodification projects mentioned in this table.	OP	
2001 C	<i>Streambank and shoreline erosion</i> ➤ 1 Using a consultant, identify and map existing polluted runoff problems caused by streambank or shoreline erosion that are not reviewed under existing permits.	OP, DOH, consultant	SFG
D	<i>Operation and maintenance of existing modified channels</i> ➤ 1 Convene Stream Systems focus group, supplemented as needed with representation from entities and individuals (such as taro farmers, the counties, DOA irrigation systems, and private water collection systems (e.g., A&B in East Maui)) which use channels for water transmission, to review existing operation and maintenance programs for modified channels and determine what programs exist in the various organizations ➤ 2 Using information on existing operation and maintenance programs for modified channels collected in activity above, SFG will develop a set of options for State-level (if appropriate) programs to identify opportunities for improvement of water quality and habitat in existing modified channels in order to provide a basis for future discussion by all interested parties.	OP, DOH	Members of SFG + additional needed contacts

Year	Activity/ Outcome	Facilitating Agency	Support
2002 C	<i>Streambank and shoreline erosion, cont'd</i> ➤2 With the help of a project coordinator, work with identified watershed-based groups in one county to propose solutions to existing polluted runoff problems caused by streambank or shoreline erosion that are not reviewed under existing permits. Use data to begin to develop a “solutions manual” by grouping the types of problems and proposed solutions. Pilot test some solutions.	OP, consultant	SFG, designated watershed groups in one county
D	<i>Operation and maintenance of existing modified channels, cont'd</i> ➤3 Using package of options developed in Action Item 2001-D-2, SFG will propose to and discuss options with various CNPCP focus groups for a State-level (if appropriate) program to identify opportunities for improvement of water quality and habitat in existing modified channels. ➤4 Based on discussions in Activity 2002-D-3, SFG will develop recommendations.	OP, DOH, SFG	Category focus groups + other interested agencies, public and private organizations and individuals
E	<i>State-level enforceable policies and mechanisms for control of pollutants in dam construction and maintenance</i> ➤1 The SFG, supplemented as needed by parties involved in construction and maintenance of dams, will review the enforceable mechanisms of State and county programs that address erosion and sediment control, and chemical and pollution control, which might be applicable to dams. ➤2 The SFG will also review of enforceable policies and mechanisms for dams from other states ➤3 Based on the above reviews, the SFG will develop a set of options to meet the “Findings” requirement for State-level enforceable policies and mechanisms regarding erosion and sediment control, and chemical and pollution control, for dams.	OP, DOH, consultant, or intensive work group	SFG augmented by interested persons from other focus groups
2003 C	<i>Streambank and shoreline erosion, cont'd</i> ➤3 Using a consultant, continue the project dealing with existing polluted runoff problems caused by untreated streambank or shoreline erosion by involving a third county. Seek fourth-year funding. Develop educational/training video based on “solutions manual.”	OP, DOH	Interested watershed groups

Year	Activity/ Outcome	Facilitating Agency	Support
2003 cont'd D	<p><i>Operation and maintenance of existing modified channels, cont'd</i></p> <p>➤5 Take out for public review and comment the recommendations (developed in Activity 2002-D-4) for program(s) to identify opportunities for improvement of water quality and habitat in existing modified channels.</p> <p>➤6 SFG will revise recommendations as needed based on their review of public comment and forward recommendations to State and county programs for implementation.</p>	OP, DOH	SFG, augmented by interested persons from other focus groups
E	<p><i>State-level enforceable policies and mechanisms for control of pollutants in dam construction and maintenance, cont'd</i></p> <p>➤4 The SFG, augmented by interested persons from other focus groups, will consider options developed in Activity 2002-E-1 to meet the requirement for State-level enforceable policies and mechanisms regarding erosion and sediment control, and chemical and pollution control, for dams and make recommendations for implementation.</p> <p>➤5 Take out for public review and comment the recommendations (developed in Activity 2003-2) for State-level enforceable policies and mechanisms regarding erosion and sediment control, and chemical and pollution control for dams.</p> <p>➤6 SFG will revise recommendations as needed based on their review of public comment and forward recommendations to State and county programs for implementation.</p>	OP, DOH, SFG	DLNR, counties, private water collection systems, agricultural interests using dams
F	<p><i>Evaluation of outcomes in this 5-year implementation plan and preparation of next 5-year plan</i></p> <p>➤1 Using information gained from evaluation and experience of past three years, work with agencies and stakeholder groups to develop implementation strategies for hydromodifications for next five years.</p> <p>➤2 Prepare hydromodifications section of 5-year Implementation Plan for Phase II (2004-2009), take out for public review, revise and submit to EPA and NOAA.</p>	OP, DOH	SFG + other government, public & private sector entities and individuals with a stake in hydromodifications



## 6.6 Wetlands and Riparian Areas

**15-year Program Strategy:** Assist in implementing the protective approach in *Hawai'i Wetland Management Policy* (DOH 1999d) by achieving the CNPCP management measure goals for wetlands and riparian areas and other actions which link to and accomplish the short and long-term goals in this plan and the State's water quality goals. These activities will be conducted within the watershed protection program developed in Chapter 6-5.

**Phase I:** By 2003, the State will:

1. Develop management measures by which wetlands and riparian areas can be protected from the impacts of existing development which adversely affects the nonpoint source pollution abatement functions of such areas;
2. If needed, based on the Attorney General's review<sup>22</sup>, develop and implement enforceable policies and mechanisms to ensure implementation of the wetland and riparian area management measures throughout the 6217 management area (the entire State);
3. Review and begin to implement where appropriate the strategies for the management of riparian areas on public lands proposed in *Riparian Nonpoint Pollution Control in Hawaii: Impacts and Policy Recommendations* (1996); and
4. Develop a strategy for advocating for sufficient funding of government agencies with wetland management, restoration, and/or permitting responsibilities.

**Phase II:** By 2008, the State will ensure that the CNPCP management measure goals for wetlands and riparian areas have been achieved throughout the State. This will include carrying out a pilot project for implementation of management measures and BMPs for controlling adverse impacts of existing development on wetlands and riparian areas developed in Phase I. The pilot project will test implementation of management measures and assess their effectiveness and economic achievability. It will be evaluated, the management measures and BMPs revised as necessary, and a strategy developed for expanded implementation. If necessary, the State will work with appropriate legislative bodies to create enforceable backup for the measures.

The State will continue to advocate for sufficient funding of government agencies with wetlands management, restoration, and/or permitting responsibilities, based on a funding system in which agencies and their partners are paid for the value of the wetland benefits protected by their management. It will investigate the usefulness of a centralized facilitation and coordination function for wetland management and work toward its development and funding if appropriate. The State will work toward simplification of agencies' application and internal and public review processes for permits affecting wetland and riparian areas, while maintaining protection for wetland and riparian area resources.

**Phase III:** By 2013, the State will ensure that the CNPCP management measure goals for wetlands and riparian areas have been achieved throughout the State. It will continue to advocate for sufficient funding of government agencies with wetland management, restoration,

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22 See Page 6-2.

and/or permitting responsibilities. If a centralized facilitation and coordination function has been established, the State will continue to advocate for its funding.

During the last year of each Phase, the State will evaluate the implementation of activities proposed for that Phase, prepare the next five-year Implementation Plan for public review, and submit the final plan for the next Phase to EPA and NOAA.

*6.6.1 Management Measures for Protection of Wetlands and Riparian Areas, and for Vegetated Treatment Systems*<sup>23</sup>

- Protect from adverse effects wetlands and riparian areas that are serving a significant nonpoint source pollution abatement function and maintain this function while protecting the other existing functions of these wetlands and riparian areas as measured by characteristics such as vegetative composition and cover, hydrology of surface water and ground water, geochemistry of the substrate, and species composition.
- Promote the restoration of the pre-existing functions in damaged and destroyed wetlands and riparian systems in areas where the systems will serve a significant nonpoint source pollution abatement function.
- Promote the use of engineered vegetated treatment systems such as constructed wetlands or vegetated filter strips where these systems will serve a significant nonpoint source pollution abatement function.<sup>24</sup>

*6.6.2 Findings and Conditions for Wetlands and Riparian Area Management Measure*

Finding: “Hawaii’s program includes management measures in conformity with the 6217(g) guidance for restoration of wetlands and riparian areas, vegetated treatment systems, and protecting wetlands and riparian areas within the 6217 management area, except for protecting wetlands and riparian areas from existing development which adversely affects the nonpoint source abatement functions of such areas and enforceable policies and mechanisms to ensure implementation throughout the 6217 management area..”<sup>25</sup>

**Conditions:** Within 5 years, the State will (1) include in its CNPCP management measures in conformity with the 6217(g) guidance which provide protection of wetlands and riparian areas from existing development which adversely affects the nonpoint source pollution abatement functions of such areas and (2) enforceable policies and mechanisms to ensure implementation of these management measures throughout the 6217 management area.

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23 Pages III-231 through III-244 in *Hawaii’s Coastal Nonpoint Pollution Control Program Management Plan* describes the three management measures below, their applicability, appropriate management practices, existing implementation mechanisms, and recommended implementing actions.

24 This management measure has been stated in terms of its benefit to wetlands and riparian areas but the Best Management Practices used to implement them are applicable in other management area categories.

25 Appendix A-5, page A-5-15.

### 6.6.3. 5-Year Implementation Plan

The following plan proposes a series of activities to begin to work toward accomplishment of the 15-year goal in the context of watershed protection. In the process, the State intends to address the conditions regarding wetlands and riparian area management measures imposed by the *Findings for Hawaii's Coastal Nonpoint Pollution Control Program*.<sup>26</sup> The plan includes projects to:

1. Develop management measures by which wetlands and riparian areas can be protected from the impacts of existing development which adversely affects the nonpoint source pollution abatement functions of such areas; pilot test their implementation, evaluate the results, modify if necessary, and expand their implementation;
2. Review and implement where appropriate several phases of the strategy for the management of riparian areas on public lands proposed in *Riparian Nonpoint Pollution Control in Hawaii: Impacts and Policy Recommendations* (1996); and
3. Develop and apply a strategy to advocate for sufficient funding of government agencies with wetland management, restoration, and/or permitting responsibilities. Work toward a funding system in which agencies and their partners are paid for the value of the wetland benefits protected by their management.

Table 6-6 presents these wetland and riparian area action items and desired outcome for the period 2000-2003 and, as far as the information is currently available, shows lead and support actors.

### 6.6.4 Possible Phase II activities for wetlands:

1. Develop a consensus regarding provision of a central facilitation and coordination function for wetlands management in Hawaii (an action recommended in both *Hawai'i Wetland Management Policy* (DOH 1999d) and *Hawaii's Coastal Nonpoint Pollution Control Program Management Plan*); and
2. By means of a series of workshops, work toward simplification of agencies' application and internal and public review processes for wetland permits without harming wetland resources. Create and disseminate an educational pamphlet concerning the roles and responsibilities of agencies with wetland permit or approval programs.

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26 See Appendix A-5 for full text of "Findings..."

Table 6-6  
Wetland and Riparian Management Measure Implementation Plans for 2000-2004

Year	Activity/ Outcome	Facilitating Agency	Support
2000 A	<i>Stream Systems Focus Group</i> ➤1 Establish and convene Stream Systems focus group (SFG). As noted in Section 6-5, the Stream Systems Focus Group (SFG) will cover hydromodifications, wetlands, and riparian areas, so it will be necessary to ensure that the membership includes representation from a full range of entities and individuals involved in use, regulation, and enhancement of wetlands, estuaries, and streams, as well as channels and dams.	OP, DOH	Members of previous SFG, State, county, and federal agencies, interested public and private sector organizations
B	<i>State definition of wetlands</i> ➤1 SFG, augmented if needed by additional expertise, review existing federal wetland definition, as well as the definition proposed in the <i>Hawai'i Wetland Management Policy</i> (DOH 1999d), develop a recommendation for appropriate State definition of wetland and for means to implement the recommendation.	OP, DOH, SFG	DOH Wetland Policy workgroup + other government, public & private sector entities and individuals with a stake in wetlands
2001 B	<i>State definition of wetlands, cont'd</i> ➤2 Implement the recommendation for a State definition of wetlands through appropriate legislative action at the State and county level.	OP, DOH	SFG + other government, public & private sector entities and individuals with a stake in wetlands
C	<i>Protection of wetlands and riparian areas from impacts of existing development</i> ➤1 The SFG will investigate methods, in the context of watershed protection, by which wetlands and riparian areas can be protected from existing development which adversely affects the nonpoint source pollution abatement functions of such areas. ➤2 SFG assist in developing management measures and Best Management Practices to accomplish protection of wetlands and riparian areas from adverse impacts of existing development. ➤3 SFG combine the results of above activities into a package of options to assist in developing management measures and Best Management Practices to accomplish protection of wetlands and riparian areas from adverse impacts of existing development	Consultant or intensive workgroup	SFG, DOH Wetland Policy workgroup + other government, public & private sector entities and individuals with a stake in wetlands

Year	Activity/ Outcome	Facilitating Agency	Support
D	<i>Implement wetlands and riparian area BMPs on public lands</i> >1 Conduct training for key public lands management personnel in the use of the Best Management Practices for implementation of the wetlands and riparian areas management measures, including the use of vegetative treatment systems, in order to reduce polluted runoff from those lands, especially sediment.	OP, persons with expertise in use of BMPs	DLNR Chair & Managers
E	<i>Funding for government agencies with wetland management and/or permitting responsibilities</i> >1 Develop a strategy for advocating for sufficient funding of government agencies (especially NRCS, DLNR, and DOH) with wetland management and/or permitting responsibilities. Carry out strategy as appropriate.	OP	SFG, DOH Wetland Policy workgroup + other government, public & private sector entities and individuals with a stake in wetlands
2002 C	<i>Protection of wetlands and riparian areas from impacts of existing development, cont'd</i> >4 Using package of options developed in Action Item 2001-A, propose to various CNPCP focus groups draft management measures and set of Best Management Practices by which wetlands and riparian areas can be protected from existing development which adversely affects the nonpoint source pollution abatement functions of such areas.	CZM	All category focus groups + other interested agencies, public and private organizations and individuals
D	<i>Implement wetlands and riparian area BMPs on public lands, cont'd</i> >2 Work with appropriate State agencies to require wetlands and riparian BMP implementation as a condition of all State land leases, permits, and approvals involving riparian areas in order to provide for the implementation of wetland and riparian area management measures on encumbered public lands. Implementation of this activity should involve consultation with interested members of SFG and other focus groups.	OP, DLNR, DHHL	SFG, other CNPCP focus groups, other interested government, public & private sector entities and individuals
E	<i>Funding for government agencies with wetland management and/or permitting responsibilities, cont'd</i> >2 Evaluate results of prior year's funding advocacy and adjust strategy accordingly. Work toward a funding system in which agencies and their partners are paid for the value of the wetland benefits their management protects. Continue funding advocacy for government agencies as in Activity 2001-E-1.	CZM	Stream Systems focus group, DOH Wetland Policy workgroup + other government, public & private sector entities and individuals with a stake in wetlands

Year	Activity/ Outcome	Facilitating Agency	Support
2003 D	<i>Implement wetlands and riparian area BMPs on public lands, cont'd</i> ➤3 Investigate requiring implementation of wetland and riparian area BMPs as a condition under federal consistency reviews in order to provide for implementation of wetland and riparian area BMPs on projects involving federal lands, funds, or permits.	OP	CZM federal consistency personnel, federal land owners & managers
E	<i>Funding for government agencies with wetland management and/or permitting responsibilities, cont'd</i> ➤3 Evaluate results of prior year's funding advocacy and adjust strategy accordingly. Continue to advocate for sufficient funding for government agencies as in Activity 2000-E-1. Seek to help community-based entities locate private funding for existing and proposed watershed management activities which include wetland and riparian area enhancement.	OP	SFG, DOH Wetland Policy workgroup + other government, public & private sector entities and individuals with a stake in wetlands
F	<i>Evaluation of outcomes in this 5-year implementation plan and preparation of next 5-year plan</i> ➤1 Using information gained from evaluation and experience of past three years, work with agencies and stakeholder groups to develop implementation strategies for wetlands and riparian areas for next five years. ➤2 Take results of above activity out to public hearing, revise as appropriate, and submit to EPA and NOAA as 5-year Implementation Plan for Phase II (2004-2009)	OP, DOH	SFG, DOH Wetland Policy workgroup + other government, public & private sector entities and individuals with a stake in wetlands

## 6.7 Federal Lands

The Federal government owns 338,035 acres or 8.4 percent of all lands in Hawaii (Atlas of Hawaii, 1998). The Department of Defense (DOD) and the Department of the Interior manage the majority of these Federal lands.

The State's Coastal Zone Management (CZM) Program reviews Federal programs and activities for consistency with the objectives and policies in Chapter 205A of Hawaii Revised Statutes. The statute defines the coastal zone to include all land areas of the State and extends seaward to the limit of State's management authority. Because Hawaii's Coastal Nonpoint Pollution Control Program is part of the State's CZM Program, Federal programs and activities should also be consistent with the provisions and authorities identified in Hawaii's Coastal Nonpoint Pollution Control Program. Federal consistency requirements allow the State to advocate that activities on Federal lands do not detract from the State's ability to meet its long-term water quality goals.

Federal consistency with the Chapter 205A and Hawaii's Coastal Nonpoint Pollution Control Program is assured through regular reviews of proposed programs and activities. Federal agencies submit activities for review or an applicant applying for a Federal permit submits a copy of the permit application to the CZM Program for consistency review. The CZM Program publishes a notice of receipt of the proposed Federal activity or permit application in the Office of Environmental Quality Control's *Environmental Notice*. The CZM Program has up to 45 days to review a proposed Federal Activity and up to six months to review a Federal permit application.

Regular communications and meetings occur among representatives from Department of Health (DOH), Office of Planning, and Federal agencies. Hawaii's CZM Program has the authority to decide which Federal programs and activities require a formal Federal consistency review.

As part of the President's Clean Water Action Plan, Federal agencies in Hawaii that address water quality issues meet on a regular basis to implement the plan. An erosion control subcommittee was formed and the Office of Planning, Department of Health, and the University of Hawaii were invited to join. The subcommittee meets approximately once every two months to discuss ways to integrate Federal and State initiatives to implement provisions in the Clean Water Action Plan.

Public comments received by the State indicate a concern for activities on military lands, primarily in regard to fires on military lands and pollutants from vessels and around harbors. Recently, the DOD required military branches to prepare Integrated Natural Resource Management Plan (INRMP) for installations in Hawaii. The Air Force and Army have completed their plans, and the Navy has begun to prepare one. Significant polluted runoff threats are addressed in these INRMPs including fire prevention and control measures and impacts of training exercises. In addition, DOD is developing uniform national discharge standards for armed forces vessels, which will require vessels to use marine pollution control devices as well as other discharge controls.

The State intends to communicate nonpoint source control concerns to the appropriate Federal agencies to help meet the management measures. It has accepted DOD's invitation to participate in the development of new national discharge standards for vessels. The State will use current forums listed in Chapter 3 and Federal Consistency review meetings to address polluted runoff issues originating from Federal lands and activities.<sup>27</sup>

## 6.8 Critical Coastal Areas and Additional Management Measures

Section 6217(b) of the Coastal Zone Act Reauthorization Amendments (CZARA) of 1990 requires states to implement management measures in addition to those contained in EPA's *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* [the "(g) measures"]. In general, the purpose of this "second tier" of management measures is to address water quality problems that continue despite the implementation of the (g) measures. According to the Environmental Protection Agency's (EPA) and the National Oceanic and Atmospheric Administration's (NOAA) Program Development and Approval Guidance, "these additional measures apply both to existing land and water uses that are found to cause or contribute to water quality impairment and to new or substantially expanding land uses within critical coastal areas adjacent to impaired or threatened coastal waters" (p. 22).

Specifically, the State must identify its threatened or impaired coastal waters and the land uses that cause or threaten these waters; delineate critical coastal areas; develop a process for determining whether additional measures are necessary to attain or maintain water quality standards in the threatened or impaired waters; describe the additional management measures the State will apply to the identified land uses and critical coastal areas; and develop a program to ensure the implementation of additional management measures. These elements are discussed in detail in Part IV of *Hawaii's Coastal Nonpoint Pollution Control Plan* (CNPCP).

In the CNPCP, the State took the position that while it had and would continue to identify its impaired or threatened coastal waters and other waterbodies under the CWA Section 303(d) and 305(b) processes, it had not yet undertaken the other activities. Consequently, one of the conditions imposed by EPA and NOAA in the "Findings"<sup>28</sup> document is that by 2003, the State will include in its CNPCP the following program elements:

1. A process for the identification of critical coastal areas and a process for developing and revising management measures to be applied in critical coastal areas and in areas where necessary to attain and maintain water quality standards.
2. The State will also include in its program a process to provide technical assistance in the implementation of additional management measures.

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27 In February 2000, a proposed Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management was put out for public comment. It would apply to federal lands in Hawaii controlled by the Department of Defense, U.S. Fish & Wildlife Service, and National Park Service. The policy had not been finalized at press time. Further information is available on the Web at <http://www.cleanwater.gov/ufp/>

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The State has continued to update its impaired or threatened waterbodies and is beginning to do TMDL studies for these waterbodies. Through these actions, the other activities listed in this *Implementation Plan*, and activities carried out by other government, private, and community organizations, the State anticipates that information to accomplish the conditional requirements will likely become available in the period 2000-2002. Therefore, the State plans to revisit this issue in mid-2002 and at that time will supply EPA and NOAA with a plan for meeting the conditions by the end of 2003.

## **6.9 Monitoring**

Section 6217(g) of the Coastal Zone Act Reauthorization Amendments (CZARA) requires a description of any necessary monitoring techniques to accompany the management measures to assess over time the success of the measures in reducing pollution loads and improving water quality. EPA's *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* provides:

1. Guidance for measuring changes in pollution loads and in water quality that may result from the implementation of management measures; and
2. Guidance for ensuring that management measures are implemented, inspected, and properly maintained.

Each of the above stated guidance elements, as well as the means available in Hawaii to accomplish them as of 1996, are discussed in Part VII of Hawaii's CNPCP.

In their "Findings" document, EPA and NOAA directed the State to include within its CNPCP by July 1999 "A plan that enables the State to assess over time the extent to which implementation of management measures are reducing pollution loads and improving water quality."<sup>29</sup> A draft monitoring plan was submitted to NOAA in the Fall of 1999, but no response had been received as of the printing of this document.

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